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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,515	10/07/2003	Masato Shimada	Q77853	8423
23373	7590	04/27/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				MRUK, GEOFFREY S
		ART UNIT		PAPER NUMBER
		2853		

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

✓ EF

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/679,515	SHIMADA, MASATO	
	Examiner Geoffrey Mruk	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 14 April 2005.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-8 is/are pending in the application.  
 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-6 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 07 October 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7 October 2003</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### *Election/Restrictions*

Claims 7 and 8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 14 April 2005.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. (US 5,880,763).

With respect to claim 1, Tanaka discloses a liquid-jet head (Fig. 7) including a passage-forming substrate (Fig. 7, element 6) on which pressure generating chambers (Fig. 7, element 7) communicating with nozzle orifices (Fig. 7, element 10) ejecting liquid are formed and piezoelectric elements (Fig. 7, element 2) which are provided on one side of the passage-forming substrate through a vibration plate (Fig. 7, element 4) and cause pressure changes in the pressure generating chambers (Column 6, lines 30-33), wherein a covering plate (Fig. 7, element 5) having a piezoelectric element holding portion (Fig. 7, element 3) which covers the piezoelectric elements is joined with a

surface of the passage-forming substrate where the piezoelectric elements are provided, and a nozzle plate (Fig. 7, element 11) provided with the nozzle orifices is joined with a surface of the passage-forming substrate opposite to the surface where the covering plate is joined and at least a region of the passage-forming substrate facing the piezoelectric element holding portion is relatively thicker (Fig. 7, element Na) than an outside of the region (Fig. 7, interface of elements 4, 5, 6, and 11), facing the piezoelectric element holding portion (Column 6, lines 20-41). Figure 7 shows the direction of a nozzle opening array deformed when expelling an ink droplet thus, reading on the limitations in claim 1.

With respect to claim 2, Tanaka discloses the region of the passage-forming substrate (Fig. 7, element 6) facing the piezoelectric element (Fig. 7, element 2) holding portion (Fig. 7, element 3) is relatively thicker than the outside of the region (Fig. 7, interface of elements 4, 5, 6, and 11) facing the piezoelectric element holding portion at least in an aligned direction of the pressure generating chambers (Column 6, lines 20-41).

With respect to claim 3, Tanaka discloses the region of the passage-forming substrate (Fig. 7, element 6) facing the piezoelectric element (Fig. 7, element 2) holding portion (Fig. 7, element 3) is relatively thicker than the outside of the region (Fig. 7, interface of elements 4, 5, 6, and 11) facing the piezoelectric element holding portion at least in a longitudinal direction (Fig. 1, line B-B) of the pressure generating chambers (Column 6, lines 20-41).

With respect to claim 4, Tanaka discloses the passage-forming substrate (Fig. 7, element 6) is tapered (Fig. 7, geometry of element 13) in thickness from the region facing the piezoelectric element (Fig. 7, element 2) holding portion to an edge of the passage-forming substrate (Fig. 7, interface of elements 4, 5, 6, and 11).

With respect to claim 5, Tanaka discloses a difference between a maximum thickness (Fig. 7, element Na) and a minimum thickness (Fig. 7, interface of elements 4, 5, 6, and 11) of the passage-forming substrate (Fig. 7, element 6) is 30nm to 5 $\mu$ m (Column 6, lines 20-41).

With respect to claim 6, Tanaka discloses a liquid-jet apparatus (Column 1, lines 10-13) comprising any one of the liquid-jet heads according to claims 1 to 5.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hubbard et al. (4,605,939) discloses cavity plates (Fig. 1, element 24) that are thicker in the middle portion than the outside portion.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is (571) 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GSM  
4/20/2005

GM

  
4/25/05  
MANISH S. SHAH  
PRIMARY EXAMINER